

REMARKS

Claims 3, 15 and 17 have been amended without prejudice or disclaimer to correct their dependency and not to limit their scope. The amendments to the claims do not introduce any new matter.

Response to Claim Objections

Claims 3, 15, and 17 have been objected to under 37 CFR 1.75(c) as being of improper dependent form (i.e. depending from cancelled claims). The claims have been amended without prejudice or disclaimer to remedy their dependency. Thus, the objection has been obviated and should be withdrawn.

Response to Rejection Under 35 U.S.C. §103(a)

Claims 1, 3-7, 15-16 and 18-20 have been rejected under 35 U.S.C. §103(a) as being obvious over Ding et al., U.S. Patent No. 5,814,563 ("Ding et al") in view of Obeng, U.S. Patent No. 6,162,733 ("Obeng et al."). Claims 8-12 have been rejected under §103(a) as being obvious over Ding et al. and Obeng in view of Kito et al., U.S. Patent No. 6,867,450 ("Kito et al"). The rejections are improper because:

1. The references do not teach or suggest all the claim recitations (individually or in combination); and
2. Obeng et al. teaches away from what applicants have claimed.

First, the references fail to suggest introducing a combination of a halogen based plasma etch with N₂, O₂, or mixtures thereof into a process chamber. To establish *prima facie* obviousness, all the claim limitations must be taught or suggested by the prior art. *In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991); *In re Royka*, 490 F.2d 981 (CCPA 1974); MPEP 2143.03. The rejection incorrectly concludes that Obeng et al. discloses a composition comprising a halogen based plasma and a gas selected from the group consisting of N₂, O₂, and mixtures thereof. Obeng et al. discloses the individual use of a halogen based plasma followed by the individual

use of a gas selected from the group consisting of N_2 , O_2 , and mixtures thereof. It does not suggest using them in combination.

Obeng et al. actually teaches away from using halogen based plasma together with N_2 , O_2 , or mixtures thereof. Where a reference discourages persons skilled in the art from doing what applicants claim, the reference established "the very antithesis of obviousness." See *In re Buehler* 185 USPQ 781 (CCPA 1975); *In re Rosenberger and Brandt*, 156 USPQ 24, 26 (CCPA 1967). Obeng et al. describes a method where the halogen based plasma etch and the N_2 , O_2 , or mixtures thereof, are introduced into the process chamber in entirely different steps in order to reduce halogen contaminants left from the halogen based plasma etch. See Column 3, lines 23-42, and especially Column 3, lines 27-28 ("Thereafter the device is subjected to further processing steps to remove from the device any halogen contaminants."). The reference teaches evacuating the process chamber to a "base, sub-atmospheric pressure" between the halogen based plasma etch step and the step in which N_2 is introduced. See column 3, lines. 28-34. The reference continues by noting that "Preferably, the chamber is cycle purged a number of times. That is, the chamber is evacuated and back-filled with an inert gas (e.g., nitrogen) a number of times in an attempt to purge the chamber of any reactive gasses." See Column 3, lines 39-42. Based on the teachings of Obeng et al., one of ordinary skill in the art would be discouraged from doing what applicants have claimed, i.e. combining a halogen based plasma with N_2 , O_2 , or mixtures thereof. Thus, the rejection is improper and should be withdrawn.

In view of the above, consideration and allowance are respectfully solicited.

In the event the Examiner believes an interview might serve in any way to advance the prosecution of this application, the undersigned is available at the telephone number noted below.

The Office is authorized to charge any necessary fees to Deposit Account No. 22-0185.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 50-0510, under Order No. 20140-00317-US from which the undersigned is authorized to draw.

Dated: September 13, 2007

Respectfully submitted,

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